T6575 On-line
Suspended Solids (sludge) Concentration Meter
Operating Manual

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Shanghai Chunye Instrument Technology Co.,Ltd

Contents

Preface

Thank you for your support to us. Please read the instruction manual carefully before use to help you use our products correctly.

When receiving the instrument, please carefully open the package, check whether the instrument and accessories are damaged by transportation, whether the accessories are complete, if abnormal, please contact our after-sales service department or regional customer service center, and keep the packaging for return processing.

Wiring or repair shall be done by a professional and operate only on instruments with power-off. In the event of an instrument safety problem, power off the instrument immediately to prevent any unintentional operation.

For example, it may be

Unsafe condition:

1) Significant damage to the instrument;

2) The instrument can not operate properly or provide specified measurements;

3) The instrument was stored in an environment with temperature exceeding 70℃ for a long time.

The instrument must be installed by a professional in accordance with relevant local specifications, and the guidance instructions are included in the operating instruction manual. Comply with the technical specification and input grade of the instrument.

Features

Water plant (sedimentation tank), paper plant (pulp concentration), coal washing plant (sedimentation tank), power plant (mortar sedimentation tank), sewage treatment plant (inlet and outlet, aeration tank, backflow sludge, primary sedimentation tank,secondary sedimentation tank, concentration tank, sludge dehydration).

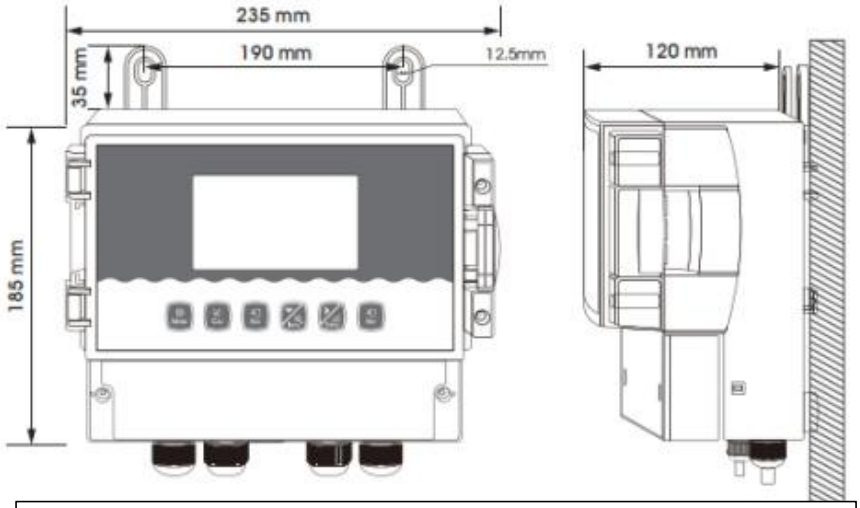
●Color LCD display
●Intelligent menu operation
●Data record & Curve Display
●Multiple automatic calibration function
●Differential signal measurement mode
●Three relay control switches
●High & low alarm and hysteresis control
●4-20mA & RS485,Multiple output modes
●Password protection function to prevent misoperation by non-staff.

Technical Specifications

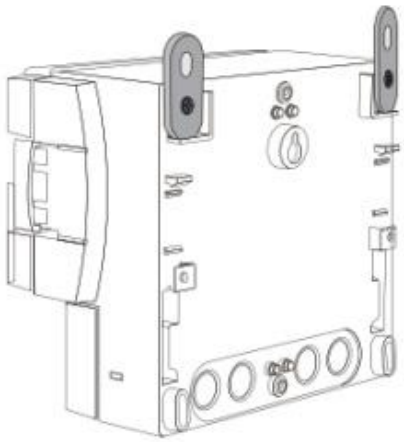
Measure range	0~99999mg/L
Measure Unit	mg/L
Resolution	0.001mg/L;0.1g/L
Basic error	±1%F.S
Temperature	-10~150℃
Temperature Resolution	0.1℃
Temperature Basic error	±0.3℃
Current output	2 Rd 4~20 mA
Communication output	RS485 Modbus RTU
Other functions	Data record/curve display/data upload
Relay controlcontacts	Three groups :5 A 240VAC,5A 28VDC or 120 VAC
Optional power supply	85-265 VAC, 9∽36VDC, Power :<3 W
Working environment	There is no strong magnetic interference besides the earth
Ambient temperature	-10-60°C
Relative humidity	No more than 90%
Protection level	IP65
Instrument Weight	1.5 kg
Dimensions of	235x185x120mm
Instrument	Wall mounted

Instrument installation

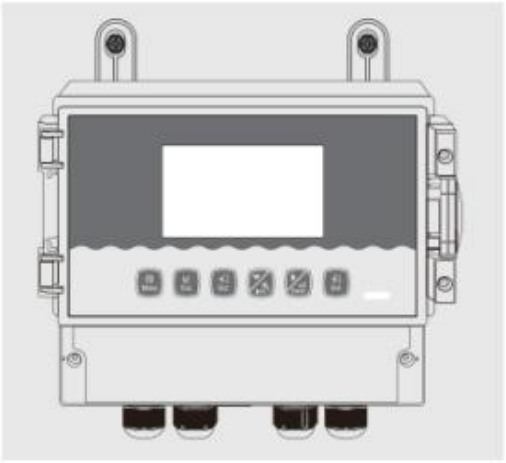
Installation size



Instrument shape, wall - mounted fixed piece size

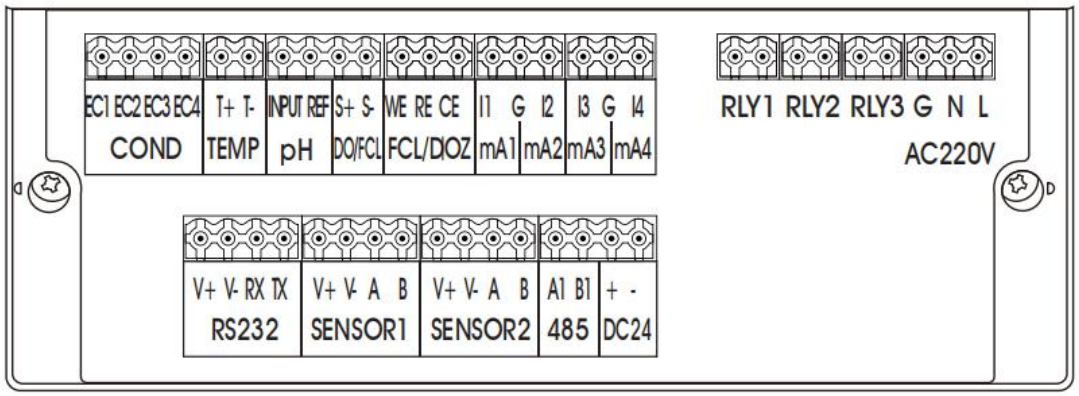


Fix the fixed piece of the instrument



Installation completion drawing

Instrument connection



EC1,EC2,EC3,EC4	Electrical conductivity/resistivity wiring	REL1 REL2 REL3	3 groups of relay
T+,T-	Temperature connection	G,L,N	G-ground wire, L-live, N-neutral
INPUT	PH/Orp/Ion measure		
REF	PH/Orp/Ion reference	V+,V-,RX, DX	RS232 communication output
S+,S -	Membrane method dissolved oxygen, FCL	V+,V-,A.B	Digital input channel 1
CE,RE,WE	Constant voltage residual chlorine/chlorine dioxide/ozone	V+,V-,A,B	Digital input channel 2
I1, G, I2	Output current	A1,B2	RS485 communication output
I3,G,I4	Input current	+,-	DC power supply

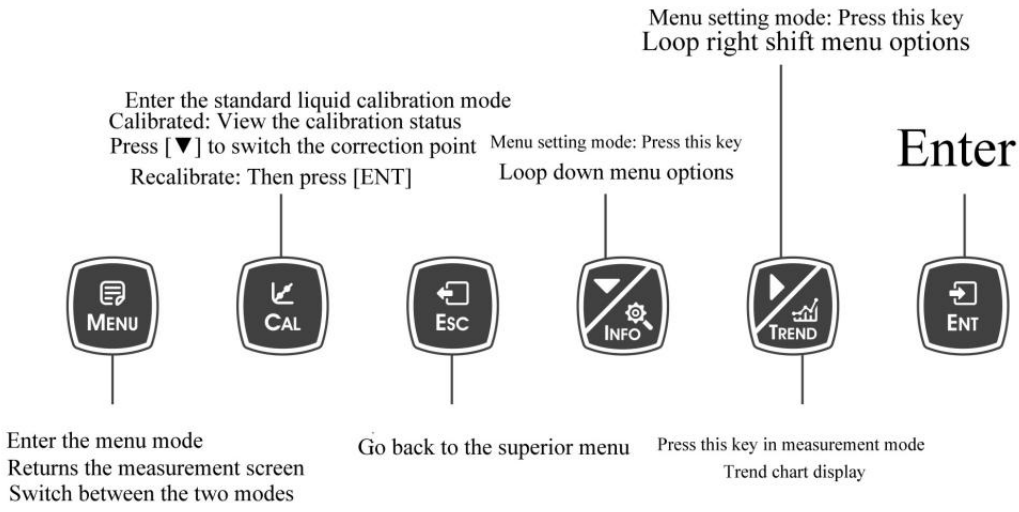
The connection between the instrument and the sensor: the power supply, output signal, relay alarm contact and the connection between the sensor and the instrument are all inside the instrument, and the wiring is as shown above. The length of the cable lead fixed by the electrode is usually 5-10 Meters, insert the corresponding label or color wire on the sensor into the corresponding terminal inside the instrument and tighten it.

Keypad descriptions

Keypad operation tips:

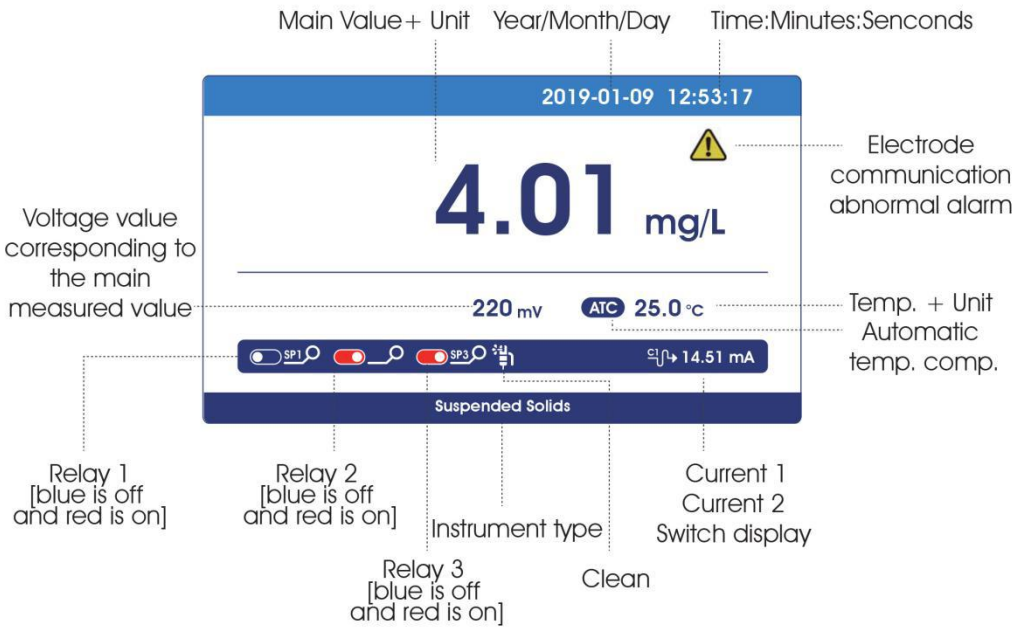
Short Press: Short Press means to release the key immediately after pressing. ((Default to short presses if not indicated below)

Long Press: Long Press is to press the button for 3 seconds and then release it.



Display description

Before using should check all the pipe connection and electrical connection, after the power supply, the instrument is shown as:

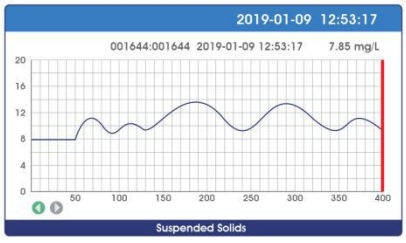


Measurement mode

Setting mode

Calibration mode

Trend Chart Display



Menu Structure

The following is the menu structure of the instrument:

Configure	Sensor	Type	Suspended Solids
		Unit	mg/L
	Temp.	Temperature Sensor	NTC2.252 kΩ
			NTC10 kΩ
			Pt100
			Pt1000
		Temperature Offset	0.0000
		Temperature Input	Automatic
			Manual
		Temperature Unit	°C
			°F
Calibration	Standard Solution Calibration	Calibration Point 1	0.01 (Default, can be modified)
		Calibration Point 2	1 (Default, can be modified)
		Calibration Point 3	10 (Default, can be modified)
		Calibration Point 4	100 (Default, can be modified)
		Calibration Point 5	1000 (Default, can be modified)
		Correction	Voltage 1
			Voltage 2
			Voltage 3A
			Voltage 3B
			Voltage 4A
			Voltage 4B
			Voltage 5
	Field Calibration	Field Calibration	
		Offset Adjustment	
		Slope Adjustment	
Alarm	Relay 1	Status	ON
			OFF
		High/Low Alarm	High Alarm
			Low Alarm
			Cleanning(Cleaning time setting is as below)
		Limit Value (Cycle) -under cleaning status	(Continuous opening time)
		Hysteresis (INterval) -under cleanning status	(The interval between the last opening and closing and the next opening)
	Relay 2	Status	ON
			OFF
		High/Low Alarm	High Alarm
			Low Alarm
			Cleanning(Cleaning time setting is as below)
		Limit Value (Cycle) -under cleaning status	(Continuous opening time)
		Hysteresis (INterval) -under cleanning status	(The interval between the last opening and closing and the next opening)
	Relay 3	Status	ON
			OFF
		High/Low Alarm	High Alarm
			Low Alarm
			Cleanning(Cleaning time setting is as below)
		Limit Value (Cycle) -under cleaning status	(Continuous opening time)
		Hysteresis (INterval) -under cleanning status	(The interval between the last opening and closing and the next opening)

Output	Current 1	Channel	Main
			Temperature
		Output Option	4-20mA
			0-20mA
			20-4mA
		Upper Limit	
		Lower Limit	
	Current 2	Channel	Main
			Temperature
		Output Option	4-20mA
			0-20mA
			20-4mA
		Upper Limit	
		Lower Limit	
	RS485	Baud Rate	4800BPS
			9600BPS
			19200BPS
		Parity Check	None
			Odd
			Even
		Stop Bit	1 Bit
			2 Bit
		Network Node	001+
Data Log	Graphic Trend (trend chart)	Interval/point	
		1h/point	
		12h/point	
		24h/point	
	Data Query	year/month/day	
	Interval	7.5s	
		90s	
		180s	
	Memory information	176932point	
	Data Output		
System	Language	English	
	Date/Time	Year-Month-Day	
		Hour-Minute-Second	
	Display	Display Speed	Low
			Standard
			Medium
			High
		Backlight	Saving
			Bright
		Range setting	First gear
			Second gear
			Third gear
			Automatic
	Soft Version	Soft Version	19-1.0
		Password Settings	0000
		Serial Number	
	Factory Default	No	
		Yes	
	Terminal Current Tuning	Current 1 4mA	(The positive and negative ends of the ammeter are connected to the current 1 or current 2 output terminals of the instrument respectively, press 【▼】 key to adjust the current to 4 mA or 20mA ,press 【ENT】 key to confirm.)
		Current 1 20mA	
		Current 2 4mA	
		Current 2 20mA	
	Relay Test	Relay 1	(Select three groups of relays and hear the sound of two switches, the relay is normal.)
		Relay 2	
		Relay 3	

Calibration

Press [MENU] to enter the setting mode and select the calibration

Calibration	Standard Solution Calibration	Calibration Point 1	Enter given standard liquid value(Example:0.01)
		Calibration Point 2	Enter given standard liquid value(Example:1)
		Calibration Point 3	Enter given standard liquid value(Example:10)
		Calibration Point 4	Enter given standard liquid value(Example:100)
		Calibration Point 5	Enter given standard liquid value(Example:1000)
	Field Calibration	Field Calibration	
		Offset Adjustment	
		Slope Adjustment	

Standard calibration

This function is used to calibrate the 5 calibration points of the sensor. It has been calibrated at the factory and can be used directly by the user.

If calibration is required, prepare 5 suitable standard liquids with known value, press **[MENU]** to enter the setting mode and select the calibration point.Modify or enter the corresponding calibration value.

After setting the calibration value, press **[MENU]** key returns to the measurement screen, and press **[CAL]** to enter the standard solution calibration mode. Standard solution calibration has five points, and can be calibrated at any point (at least one point). In the standard solution calibration mode, press [▼]key to switch correction points and press **[ENT]** key to start correction.

If the point shall be re-calibrated， in this state, press **[ENT]** key to enter re-calibration.

If the monitor prompts you to enter the calibration safety password, press **[▼]**or **[►]** key to set the calibration safety password, then press **[ENT]** to confirm the calibration safety password.

Point 1 calibration: after entering the calibration mode, the instrument is displayed as follows.
In the figure above, the set point of the instrument's main value display is known as the standard liquid value.
Place the electrode into the standard solution with the corresponding value, and the corresponding mV value and calibration status will be displayed on the left side of the screen.
When the calibration is completed, the calibration **[Done]** will be displayed on the right side of the screen.
If only a little calibration is needed, press **[ESC]** to exit the calibration.
During the calibration process, when the standard liquid is wrong, the screen will be prompted with **Error**.

Field Calibration

Select on-site calibration methods: **[Linear calibration],[Offset adjustment],[linear adjustment]**

Field calibration
Input the data from laboratory or portable instrument into this program and the instrument will automatically correct the data.
Use [▼] [►]Key input concentration data, press **[ENT]** key to start calibration, and the **Calibrating** icon in the calibration is displayed below the value. Calibration is completed
After that, the **Done** icon is displayed.
Then press **[ESC]** to exit.

Offset adjustment
Compare the data of laboratory or portable instrument with the data of instrument measurement,if there are errors, the error data can be modified by this function.

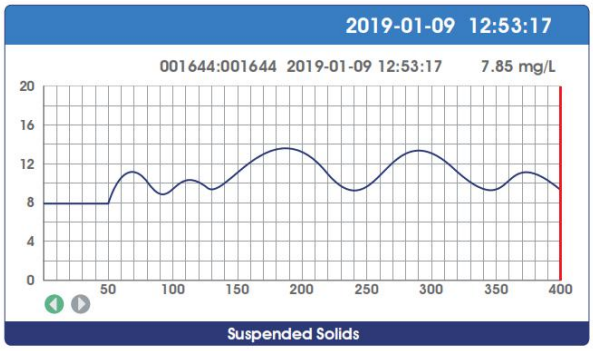
Linear adjustment
Linear values after "field calibration" are stored in this item, with factory data of 1.00.

Curve query

press [MENU] to enter setting mode, set the record interval, the instrument will save the data according to the selected record interval time.

Data Log	Graphic Trend (Trend Chart)	Record intervals/points	400 points/screen. Displays the most recent data trend graph according to record interval Settings.
		1h/point	400 points/screen. Displays the last 16 days data trend graph.
		12h/point	400 points/screen. Displays the last 200 days data trend graph.
		24h/point	400 points/screen. Displays the last 400 days data trend graph.
	Record Query	Input year/month/day to query	Year/Month/Day,Time:Minutes/Seconds Value Unit
	Record Interval	7.5s	Store data every 7.5 seconds
		90s	Store data every 90 seconds
		180s	Store data every 180 seconds

[MENU] key back to the measurement screen, the measurement mode press [**►TREND**] key, can directly view the trend chart to save data ,400 sets of data records per screen.



In the current mode, press the【**ENT**】key to move the data display line to the left and right (red). Long pressing of the 【**ENT**】key can accelerates displacement. (When the bottom icon  is green, [ENT] key is displacement direction,press 【► /**TREND**】key to switch the direction of displacement), and press 【▼/INFO】 to switch the display range (enlarge/shrink).

MODBUS RTU General Information

Overview

The hardware version number of this document is V2.0; the software version number is V5.9 and above. This document describes the MODBUS RTU interface in details and the target object is a software programmer.

MODBUS command structure

Data format description in this document;
Binary display, suffix B, for example: 10001B
- decimal display, without any prefix or suffix, for example: 256
Hexadecimal display, prefix 0x, for example: 0x2A
ASCII character or ASCII string display, for example: "YL0114010022"

Command Structure

The MODBUS application protocol defines the Simple Protocol Data Unit (PDU), which is independent of the underlying communication layer.

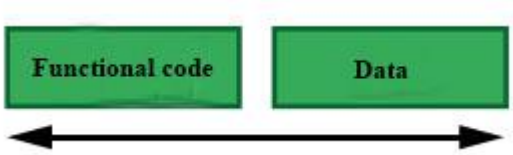


Figure 1: MODBUS Protocol Data Unit

MODBUS protocol mapping on a specific bus or network introduces additional fields of protocol data units. The client that initiates the MODBUS exchange creates the MODBUS PDU, and then adds the domain to establish the correct communication PDU.

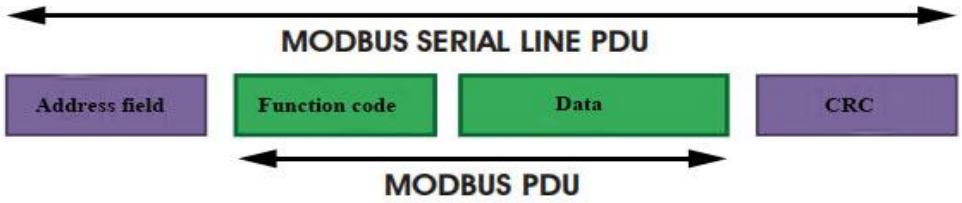


Figure 2: MODBUS architecture for serial communication

On the MODBUS serial line, the address domain contains only the slave instrument address. Tips:
The device address range is 1...247
Set the device address of the slave in the address field of the request frame sent by the host.
When the slave instrument responds, it places its instrument address in the address area of the response frame so that the master station knows which slave is responding.
Function codes indicate the type of operation performed by the server.
CRC domain is the result of the " redundancy check" calculation, which is executed according to the information content.

MODBUS RTU Transmission Mode

When the instrument uses RTU (Remote Terminal Unit) mode for MODBUS serial communication, each 8-bit byte of information contains two 4-bit hexadecimal characters. The main advantages of this mode are greater character density and better data throughput than the ASCII mode with the same baud rate. Each message must be transmitted as a continuous string.

The format of each byte in RTU mode (11 bits):

Coding system: 8-bit binary

Each 8-bit byte in a message contains two 4-bit hexadecimal characters (0-9, A-F)

Bits in each byte: 1 starting bit

8 data bits, the first minimum valid bits without parity check bits

2 stop bits

Baud rate: 9600 BPS

How characters are transmitted serially:

Each character or byte is sent in this order (from left to right) the least significant bit (LSB)...

Maximum Significant Bit (MSB)

Start bit	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Stop bit**	**Stop bit**

Figure 3: RTU pattern bit sequence

Check Domain Structure: Cyclic Redundancy Check (CRC16)

Structure description:

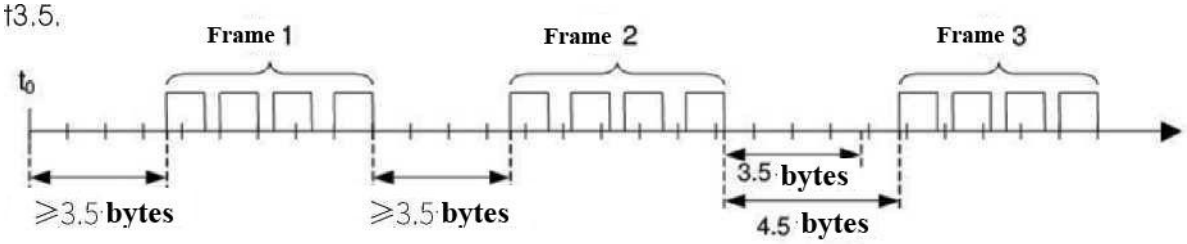
Instrument Address Data	CRC	
1 byte 1 byte 0…252 byte	2 byte	
	CRC Low byte	CRC High byte

Figure 4: RTU information structure

The maximum frame size of MODBUS is 256 bytes

MODBUS RTU Information Frame

In RTU mode, message frames are distinguished by idle intervals of at least 3.5 character times, which are called t3.5 in subsequent sections.



Start	Address	Function code	Data	CRC	Stop
≥3.5 bytes	8	8	Nx8	16	≥3.5 bytes

Figure 5: RTU message frame

The entire message frame must be sent in a continuous character stream.

When the pause time interval between two characters exceeds 1.5 characters, the information frame is considered incomplete and the receiver does not receive the information frame.

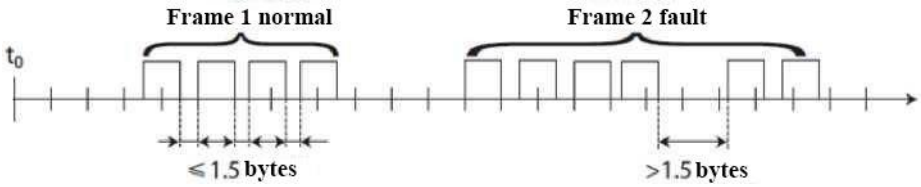


Figure 6: Frame data transmission

MODBUS RTU CRC Check

The RTU mode contains an error-detection domain based on a cyclic redundancy check (CRC) algorithm that performs on all message contents. The CRC domain checks the contents of the entire message and performs this check regardless of whether the message has a random parity check. The CRC domain contains a 16-bit value consisting of two 8-bit bytes. CRC16 check is adopted..Low bytes precede, high bytes precede.

Implementation of MODBUS RTU in Instrument

According to the official MODBUS definition, the command starts with a 3.5 character interval triggering command, and the end of the command is also represented by a 3.5 character interval. The device address and MODBUS function code have 8 bits. The data string contains n*8 bits, and the data string contains the starting address of the register and the number of read/write registers. CRC check is 16 bits.

Value	Start	Device address	Function code	Data	Summary Check		End
	No signal bytes during 3.5 characters	1-247 1	Function codes conforming to MODBUS specification	Data conforming to MODBUS specification	CRCL	CRCL	No signal bytes during 3.5 characters
Byte	3.5		1	N	1	1	3.5

Figure 7: MODBUS definition of data transmission

Instrument MODBUS RTU function code

The instrument only uses two MODBUS function codes:
0x03: Read-and-hold register
0x10: Write multiple registers

MODBUS Function Code 0x03: Read-and-hold Register

This function code is used to read the continuous block content of the holding register of the remote device. Request the PDU to specify the start register address and the number of registers. Address registers from zero. Therefore, the addressing register 1-16 is 0-15. The register data in

the response information is packaged in two bytes per register. For each register, the first byte contains high bits and the second byte contains low bits.

Request

Function code	1 byte	0x03
Start Address	2 bytes	0x0000….0xfffff
Read register number	2bytes	1...125

Figure 8: Read-and-hold register request frame

Response

Function code	1 byte	0x03
Start Address	2 bytes	0x0000….0xfffff
Read register number	2bytes	1...125

N = Register number

Figure 9: Read-and-hold register response frame

The following illustrates the request frame and response frame with the read and hold register 108-110 as an example. (The contents of register 108 are read-only, with two byte values of 0X022B, and the contents of register 109-110 are 0X0000 and 0X0064)

Request Frame		Response Frame	
Number Systems	(Hexadecimal)	Function code	(Hexadecimal)
Function code	0x03	Byte count	0x03
Start address (high byte)	0x00	Register Value (High Bytes) (108)	0x06
Start address (low byte)	0x6B	Register Value (Low Bytes)(108)	0x02
Number of Read Registers (High Bytes)	0x00	Register Value (High Bytes) (109)	0x2B
Number of Read Registers (Low Bytes)	0x00	Register Value (Low Bytes) (109)	0x00
	.	Register Value (High Bytes)(110)	0x00
		Register Value (Low Bytes) (110)	0x00
		Function code	0x64

Figure 10: Examples of read and hold register request and response frames

MODBUS function code 0x10: write multiple registers

This function code is used to write continuous registers to remote devices (1... 123 registers) block that specifies the value of the registers written in the request data frame. Data is packaged in two bytes per register. Response frame return function code, start address and number of registers written.

Request

Function code	1 byte	0x10
Start Address	2 bytes	0x0000....0xffff
Number of input registers	2 bytes	0x0001....0x0078
number of bytes	1 byte	N×2
Register values	N×2 bytes	Value

N = Register number

Figure11:Write multiple register request frames

Response

Function code	1 byte	0x10
Start Address	2 byte	0x0000….0xffff
Register number	2 byte	1…123(0x7B)

N = Register number

Figure 12: write multiple register response frames

The request frame and response frame are illustrated below in two registers that write the values 0x000A and 0x0102 to the start address of 2.

Request Frame	(Hexadecimal)	Response Frame	(Hexadecimal)
Number Systems	0x10	Number Systems	0x10
Function code	0x00	Function code	0x00
Start address (high byte)	0x01	Start address (high byte)	0x01
Start address (low byte)	0x00	Start address (low byte)	0x00
Input register number (high bytes)	0x02	Input register number (high bytes)	0x02
Input register number (low bytes)	0x04	Input register number (low bytes)	
number of bytes	0x00		
Register value (high byte)	0x0A		
Register value (low byte)	0x01		
Register value (high byte)	0x02		
Register value (low byte)			

Figure 13: Examples of writing multiple register request and response frames

Data format in instrument

Overview

Floating Point

Definition: Floating point, conforming to IEEE 754 (single precision)

Description	Symbol	Index	Mantissa	SUM
Bit	31	30…23	22…0	22…0
Index Deviation	127			

Figure 14: floating point single-precision definition (4 bytes, 2 MODBUS registers)

Example: Compile decimal 17.625 to binary

Step 1: Converting 17.625 in decimal form to a floating-point number in binary form, first finding the binary representation of the integer part

17decimal= 16 + 1 = $1\times2^4 + 0 \times 2^3+0\times2^2+0\times2^1+1\times2^0$

The binary representation of integer part 17 is 10001B

then the binary representation of decimal part is obtained

0.625= 0.5 + 0.125 = $1\times2^{-2}+ 0\times2^{-1} + 1\times2^{-3}$

The binary representation of decimal part 0.625 is 0.101B.

So the binary floating point number of 17.625 in decimal form is 10001.101B

Step 2: Shift to find the exponent.

Move 10001.101B to the left until there is only one decimal point, resulting in 1.0001101B, and 10001.101B = 1.0001101 B× 24 . So the exponential part is 4, plus 127, it becomes 131, and its binary representation is 10000011B.

Step 3: Calculate the tail number

After removing 1 before the decimal point of 1.0001101B, the final number is 0001101B (because before the decimal point must be 1, so IEEE stipulates that only the decimal point behind can be recorded). For the important explanation of 23-bit mantissa, the first (i.e. hidden bit) is not compiled.

Hidden bits are bits on the left side of the separator, which are usually set to 1 and suppressed.

Step 4: Symbol bit definition

The sign bit of positive number is 0, and the sign bit of negative number is 1, so the sign bit of 17.625 is 0.

Step 5: Convert to floating point number

1 bit symbol + 8 bit index + 23-bit mantissa

0 10000011 00011010000000000000000B (the hexadecimal system is shown as

0 x418d0000)

Reference code:

1. If the compiler used by the user has a library function that implements this function, the library function can be called directly, for example, using C language, then you can directly call the C library function memcpy to obtain an integer representation of the floating-point storage format in memory. For example: float floatdata; // converted floating point number

void* outdata;

memcpy(outdata,&floatdata,4);

Suppose floatdata = 17.625

If it is a small-end storage mode, after executing the above statement,

the data stored in the address unit outdata is 0x00.

address unit (outdata + 1) stores data as 0x00

address unit (outdata + 2) stores data as 0x8D

address unit (outdata + 3) stores data as 0x41

If it is large-end storage mode, after executing the above statement,

the data stored in outdata of address unit is 0x41

address unit (outdata + 1) stores data as 0x8D

address unit (outdata + 2) stores data as 0x00

address unit (outdata + 3) stores data as 0x00

2. If the compiler used by the user does not implement the library function of this function, the following functions can be used to achieve this function:

```
void memcpy(void *dest,void *src,int n)
{
char *pd = (char *)dest; char *ps = (char *)src;
for(int i=0;i<n;i++)        *pd++ = *ps++;
}
```

And then make a call to the above memcpy(outdata,&floatdata,4);

Example: Compile binary floating-point number 0100 0010 0111 1011 0110 0110 0110 0110B to decimal number

Step 1: Divide the binary floating-point number 0100 0010 0111 1011 0110 0110 0110 0110B into symbol, bit, exponential bit and mantissa bit.

0 10000100 11110110110011001100110B

1-bit sign + 8-bit index + 23-bit tail sign bit S: 0 denotes positive number

Index position E：10000100B $=1\times2^7+0\times2^6+0\times2^5+0\times2^4+0\times2^3+1\times2^2+0\times2^1+0\times2^0$

$=128+0+0+0+0+4+0+0=132$

Mantissa bits M：11110110110011001100110B=8087142

Step 2: Calculate the decimal number

$D = (-1)\times(1.0 + M/223)\times2E-127$

$= (-1)0\times(1.0 + 8087142/223)\times2132-127$

$= 1\times1.964062452316284\times32$

$= 62.85$

Reference Code:

```
float floatTOdecimal(long int byte0, long int byte1, long int byte2, long int byte3)
{
  long int realbyte0,realbyte1,realbyte2,realbyte3; char S;
long int    E,M;

float D;realbyte0 = byte3; realbyte1 = byte2; realbyte2 = byte1; realbyte3 = byte0;

if((realbyte0&0x80)==0)
{
  S = 0;//positive number
}
else
{
S = 1;//negative number
}
E = ((realbyte0<<1)|(realbyte1&0x80)>>7)-127;
M = ((realbyte1&0x7f) << 16) | (realbyte2<< 8)| realbyte3; D = pow(-1,S)*(1.0 + M/pow(2,23))*
pow(2,E);
return D;
}
```

Function description: parameters byte0, byte1, byte2, byte3 represent 4 bytes of binary floating point number（

the return value　　Converted the decimal number

For example, the user sends the command to get the temperature value and dissolved oxygen value to the probe. The4 bytes representing the temperature value in the received response frame are 0x00, 0x00, 0x8d and 0x41. Then the user can get the decimal number of the corresponding temperature

value through the following call statement.

That is temperature = 17.625.

```
float temperature = floatTOdecimal( 0x00, 0x00, 0x8d, 0x41)
```

Read instruction mode

The communication protocol adopts MODBUS (RTU) protocol. The content and address of the communication can be changed according to the needs of customers.

The default configuration is network address 01, baud rate 9600, even check, one stop bit, users can set their own changes;

Function code 0x04: This function enables the host to obtain real-time measurements from slaves, which are specified as single-precision floating-point type (i.e. occupying two consecutive register addresses), and to mark the corresponding parameters with different register addresses.

Communication address is as follows:

0000-0001: Temperature value

0002-0003: Main Measured Value

0004-0005: Temperature and Voltage Value
0006-0007: Main Voltage Value

Communication examples:
Examples of function code 04 instructions:
Communication address = 1, temperature = 20.0, ion value = 10.0, temperature voltage = 100.0, ion voltage = 200.0

Host Send: 01 04 00 00 08 F1 CC
Slave Response: 01 04 10 00 00 41 A0 00 00 41 20 00 00 42 C8 00 00 43 48 81 E8

Note:
[01] Represents the instrument communication address;
[04] Represents function code 04;
[10] represents 10H (16) byte data;
[00 00 00 41 A0] = 20.0; / temperature value
[00 00 4120]= 10.0; // Main Measured Value
[00 00 42 C8] = 100.0; / / Temperature and Voltage Value
[00 00 43 48] = 200.0; / / Main measured voltage value
[81 E8] represents CRC16 check code;

Daily maintenance

According to the requirements of use, the installation position and working condition of the instrument are relatively complex. In order to make the instrument work normally, maintenance personnel need to carry out regular maintenance on the instrument. Please pay attention to the following matters during maintenance:

1. Please check whether the installation box of the instrument is leaking or not when it is installed outdoors;

2. Check the working environment of the instrument. If the temperature exceeds the rated range of the instrument, please take appropriate measures; otherwise, the instrument may be damaged or its service life may be reduced;

3. When cleaning the plastic shell of the instrument, please use a soft cloth and a soft cleaner to clean the shell. Be careful not to let moisture enter the inside of the instrument.

4. Check whether display data of the instrument is normal or not.

5. Check whether the wiring on the terminal of the instrument is firm. Pay attention to disconnect the AC power before removing the wiring cover.

Frequently Asked Questions

1.LCD display is not bright

Possible causes:Instrument or LCD Screen power supply failure.

Solutions:Check whether the power supply is connected or not, and check whether the power supply wire of the sensor is connected in the wrong direction.

2.No current output

Possible causes:It could be a fault in the current module or a wiring fault.

Solutions:Please check that the current output wiring is correct. Please refer to the wiring terminal diagram in the instructions.

3.The output current of the transmitter does not match the display current.

Possible causes:Current output may not be correctly calibrated.

Solutions:Please re-calibrate the 20mA output.

4.The instrument shows"⚠"

Possible causes:The transmitter and sensor are not communicating properly.

Solutions:Check that the sensor signal cable is correct. Please refer to the wiring diagram in the manual.

5.Measurements display results fluctuate greatly.

Possible causes:Sensor wiring error or low display rate setting.

Solutions:Check wiring or increase display rate appropriately

Package Set

Product Description	Quantity
1) T6580 Online Suspended Solids Meter	1
2) Instrument Installation Accessories	1
3) Operating Manual	1
4) Qualification Certificate	1

Warranty

We guarantee that there will be no significant deviation between material and process within one year from the date of purchase.

During the warranty period, if necessary repair is not caused by improper use or misoperation, please pay the transportation fee to return the instrument, and we will repair it free of charge.

Our customer service department will confirm whether the product problem is caused by the deviation of the product itself or the improper use of the customer.
Maintenance of products beyond the warranty period will be charged on a replacement basis.

The above warranties are our only valid warranties and supersede all other warranties, express or implied, including any implied, unrestricted warranties of merchantability or fitness for a particular purpose.

We shall not be responsible for any loss, compensation, expense or damage caused by the negligence or other ACTS of the buyer or any third party.
In no event shall our liability, whatever the cause of action, exceed the cost of the product in question, whether based on contract, warranty, indemnity or infringement (including negligence).

For any reason the product repair must be applied by repair card (RIR) and approved by our customer service department can be returned.
Apply for approval of repair, the name, quantity and reason must specify repair, repair the packing of the goods must be carefully to avoid damage in transit and the insurance.
Our company no any bear responsibility for the damage caused by poor packing.

Instruments should be used product repair, the original packaging, should use bubble bag with a corrugated paper boxes, best to attach a brief explanation of convenient for customer service and the product

Notes

Distinguished users, please pay attention to the following points when using the instrument, in order to ensure the life and accuracy of the instrument.

- Careful handling to avoid collision and falling instruments in use.
- Avoid contact with water or other liquids during use.
- Don't put the instrument in the sunshine for a long time. After use, it should be stored in a cool, dry and ventilated place.
- If you don't use the instrument for a long time, you should unplug the power supply to avoid accidents.
- This instrument is not suitable for use in harsh environment, high temperature, low temperature or strong magnetic field interference,which may lead to instrument damage.
- If there is any problem with the instrument, please contact the dealer or the company. Do not disassemble the instrument by yourself. If disassembled, the company will no longer be responsible for the warranty.

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